

Appl. No. : 10/713,845
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AMENDMENTS TO THE CLAIMS

Please cancel Claims 1-22.

Please amend Claims 23, 26, 27, 29, 40, 44, 45, 48, 59, and 60.

Please add new Claims 63-65.

1.-22. (Canceled)

23. (Currently amended) A method of forming an integrated circuit interconnect, comprising:

providing an insulating layer as a blanket layer;

forming a first photoresist film over the insulating layer;

exposing the first photoresist film to radiation through a first mask reticle ~~at a first radiation exposure level;~~

etching a via in the insulating layer;

forming a conductive plug within the via;

depositing an isolation layer over the insulating layer and the conductive plug;

forming a second photoresist film over the isolation layer;

exposing the second photoresist film to radiation through the first mask reticle ~~at a second radiation exposure level;~~

etching an opening in the isolation layer over the conductive plug, the opening having a width narrower than that of the conductive plug; and

forming a conductive line over the opening such that the conductive line makes electrical contact with the conductive plug through the opening.

24. (Original) The method of Claim 23, wherein the insulating layer comprises BPSG.

25. (Original) The method of Claim 23, wherein the first photoresist film has a thickness within the range of about 500 nm to about 1,500 nm.

26. (Currently amended) The method of Claim 25, wherein the second photoresist film has a thickness within the range of about 100 nm to about 500 nm.

27. (Currently amended) The method of Claim 23, wherein exposing the first photoresist film to radiation comprises using a radiation exposure level that ~~the first radiation exposure level~~ falls within the range of about 10 mJ/cm² to about 90 mJ/cm².

28. (Original) The method of Claim 27, wherein etching a via in the insulating layer comprises dry etching.

29. (Currently Amended) The method of Claim 23, wherein exposing the first photoresist film comprises employing a first radiation exposure level and exposing the second photoresist film comprises employing a second radiation exposure level, wherein the second radiation exposure level is lower than the first radiation exposure level.

30. (Original) The method of Claim 29, wherein the second radiation exposure level is more than about 5% below the first radiation exposure level.

31. (Original) The method of Claim 30, wherein the second radiation exposure level is about 10% to about 15% below the first radiation exposure level.

32. (Original) The method of Claim 23, wherein forming a conductive plug comprises performing a CMP process.

33. (Original) The method of Claim 23, wherein the conductive plug comprises tungsten.

34. (Original) The method of Claim 23, wherein the isolation layer comprises a form of silicon oxide.

35. (Original) The method of Claim 23, wherein the isolation layer comprises silicon nitride.

36. (Original) The method of Claim 23, wherein etching a via in the isolation layer comprises dry etching.

37. (Original) The method of Claim 23, wherein etching a via in the isolation layer comprises wet etching.

38. (Original) The method of Claim 23, wherein forming a conductive line comprises blanket metal deposition and subsequent etching.

39. (Original) The method of Claim 23, wherein the conductive line comprises aluminum.

40. (Currently amended) A method of forming a conductive contact to a~~conductive bridge between a metal line and~~ a conductive plug, comprising:

forming an insulating layer having a thickness of less than about 100 nm over the conductive plug;

forming an opening within the insulating layer; and

filling depositing metal within the opening with metal to form the conductive contact.

41. (Original) The method of Claim 40, wherein the insulating layer comprises an oxide.

42. (Original) The method of Claim 40, wherein the insulating layer comprises silicon nitride.

43. (Original) The method of Claim 40, wherein the metal comprises aluminum.

44. (Currently amended) The method of Claim 40, wherein ~~filling the via with metal~~ depositing metal within the opening comprises depositing a blanket metal layer.

45. (Currently amended) The method of Claim 44, further comprising etching the blanket metal layer to form ~~[[the]]~~ a metal line.

46. (Original) The method of Claim 40, wherein forming the opening within the insulating layer comprises employing a photolithography reticle that is also employed to define the conductive metal plug.

47. (Original) The method of Claim 46, wherein the insulating layer is deposited directly over the conductive plug.

48. (Currently amended) A method of forming an integrated circuit element, comprising:

using a first mask to form a first via in a first layer by subjecting a first photoresist film to radiation through the first mask at a first radiation exposure level;

depositing a first metal into the first via;

using the first mask a second time to form a second via in a second layer over the first layer by subjecting a second photoresist film to radiation through the first mask at a second radiation exposure level, wherein the second radiation exposure level is different than the first radiation exposure level; and

depositing a second metal into the second via.

49. (Original) The method of Claim 48, wherein the first photoresist film has a thickness within the range of about 500 nm to about 1,500 nm.

50. (Original) The method of Claim 48, wherein the first radiation exposure level falls within the range of about 35 mJ/cm² to about 41 mJ/cm².

51. (Original) The method of Claim 48, wherein the first metal comprises tungsten.

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52. (Original) The method of Claim 48, wherein the second photoresist film has a thickness within the range of about 100 nm to about 500 nm.

53. (Original) The method of Claim 48, wherein the second radiation exposure level is less than the first radiation exposure level and the first and second photoresist films are positive photoresists.

54. (Original) The method of Claim 53, wherein the second radiation exposure level is more than about 5% below the first radiation exposure level.

55. (Original) The method of Claim 54, wherein the second radiation exposure level is about 10% to about 15% below the first radiation exposure level.

56. (Original) The method of Claim 48, wherein the second radiation exposure level is more than the first radiation exposure level and the first and second photoresist films are negative photoresists.

57. (Original) The method of Claim 56, wherein the second radiation exposure level is more than about 5% above the first radiation exposure level.

58. (Original) The method of Claim 48, wherein the second metal comprises aluminum.

59. (Currently amended) The method of Claim ~~[[58]]~~ 48, further comprising etching the second metal above the second via to define a plurality of metal lines.

60. (Currently amended) The method of Claim 59, further comprising depositing an insulating layer between the metal lines and above the second layer ~~an isolation layer in which the second via was etched.~~

61. (Original) A method of forming a plurality of conductive lines, comprising:

forming a plurality of vias in a dielectric layer having a thickness of less than about 100 nm;

depositing a conductive material over the dielectric layer such that the vias are filled with the conductive material and a conductive layer is formed over the dielectric layer and the filled vias; and

etching the conductive layer to form a plurality of conductive lines above the dielectric layer and the filled vias.

62. (Original) The method of Claim 61, wherein the conductive material comprises aluminum.

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63. (New) The method of Claim 23, wherein exposing the first photoresist film comprises employing a first radiation exposure level and exposing the second photoresist film comprises employing a second radiation exposure level, wherein the second radiation exposure level is greater than the first radiation exposure level.

64. (New) The method of Claim 63, wherein the second radiation exposure level is more than about 5% above the first radiation exposure level.

65. (New) The method of Claim 27, wherein the radiation exposure level falls within the range of about 35 mJ/cm² to about 41 mJ/cm².